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ABSTRACT

This paper outlines a joint Asian Bank/Pakistan Ministry of Education project designed to upgrade the state of teacher education and to improve the quality, status, and professional self-esteem of Pakistan's teachers. The main strategies identified by the Project for priority attention include: structural changes through the creation of four new types of teacher education institutions in each of the provinces; development of the main teacher education pre- and in-service courses; increased output and improved standard of teachers at all levels; development and implementation of a Total Educational Technology Plan; and upgrading and strengthening of existing Government Colleges for Elementary Teachers and Government Colleges of Education. Educational technology is a key element designed to assist in achieving the Project's major goals and objectives. Needs analysis produced recommendations geared for: target population; new teacher education courses; allocation of electronic media; teacher/principal attitudes towards the equipment and software; potential sources of software; availability of ancillary funding; specialist educational technology assistance for teachers; developing a profession of educational technology interested people; storage and access for hardware and software; roles of Mobile Training Units; and overseas lessons on the application of educational technology. (AEF)

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The Role of Educational Technology in Upgrading Teacher Education in Pakistan

ED 396 719

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This paper will outline a major joint Asian Bank/Pakistan ministry of Education project designed to solve one of the most serious of problems, in education in Pakistan through upgrading the state of teacher education, and the quality, status and professional self-esteem of Pakistan's teachers. A multi-faceted approach to the problems has been taken in this US$71m. project, one of the three or four major components of which is Educational Technology (ET). The project will be outlined by the Project Director, and then the Total Educational Technology Plan (TETP) will be summarised. At this early stage of the Project, the approach to this paper must, of necessity, be descriptive, with the opportunity of a more evaluative perspective not being possible for at least another two years when the Project is due to be formally completed.

As with a number of developing countries, the state of education and teacher education throughout Pakistan generally, has many problems. The major challenges include:

- insufficient schools and teachers;
- poor overall enrolment and participation rates generally, particularly in rural areas, amongst girls and at secondary school level; and
- extremely scarce educational resources such as textbooks and instructional media hardware and software.

The Project

The Joint Pakistan Ministry of Education/Asian Development Bank Teacher Training Projects (1993-98) is currently one of the biggest of a number of donor assisted projects designed to improve education in Pakistan. Some of the factors that have weakened Pakistan's education system include:

- an unsteady economy which has a limited manufacturing export industry base, coupled with a very high unemployment rate and widespread poverty, particularly in rural areas;
- a large and remote rural area with limited infrastructure such as roads, rail and quality electricity and water services;
- cultural and historical factors that have combined over the centuries to limit the importance and opportunities of education for girls in Pakistan society;
- a continual national emergency situation with India, focused mainly on the disputed territory of Kashmir, and the consequent high national budgetary priority that must be accorded to Defence, at the expense of portfolios such as education; and
- the population of Pakistan is increasing annually at the rate of 31%.

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The philosophy underlying the Teacher Training Project (TTP) is that the single most restricting factor limiting improvement in education in Pakistan, is the comparatively poor quality of both teachers and teacher training in Pakistan. The ADB TTP has identified a number of strategies designed to form a strong foundation for a healthy teacher education system. It may be of interest that the Pakistan Education system is not unlike that of Australia, with a strong national influence in education, and the four provinces having considerable operational autonomy.

Strategies

The main strategies identified by the Project for priority attention are as follows:

1.1 Structural changes through the creation of four new types of teacher education institutions (TEI) in each of the provinces:

1.1.1 **The Provincial Institutes of Teacher Education (PITE's)** which are to be the flagships of TE within each province for establishing and maintaining professional standards. Clearly this leadership role will extend from TE policy catering for the needs of the Province, to assisting the existing institutions with their respective roles, and to facilitating the implementation of the Total Educational Technology Plan (TETP).

1.1.2 **The Training Outposts (TO's)** of which there are to be 66 across the country, are to be two room centres attached to existing schools, mainly in remote rural areas to cater particularly for female teacher trainees. It is intended that the TO's will provide for both pre and in-service education.

1.1.3 **Mobile Training Units (MTU's)** of which there will be two per province, crewed by an Educational Technology Specialist (ETS)/cum trainer and an AV Technician. The roles of the MTU's will include linking the TO's with the PITE's, eg, through delivering AV and distance learning materials ordered by the TO's , maintaining AV equipment, conducting ET and distance learning training programs and acting as Outside Broadcast Units, to extend the production capability of the PITE's.

1.1.4 **Model Government Colleges for Elementary Teachers (GCET's)** eight of which will be established to serve as models for existing GCET's (for training primary and elementary teachers), and Government Colleges of Education (GCE's) for the training of secondary teachers.

1.2 The improving modernising of the main TE pre and in-service courses, a process designed to not only produce courses based on sound rationales and goals, but which will prepare a teaching service to take Pakistan into the 21st Century.

1.3 The increased output and improved standard of teachers at all levels, particularly female teachers in remote rural areas. The strategy will need to significantly improve the quality and quantity of teacher graduates, but will need to be accompanied by significant salary increases and career structures for teachers, as well as the establishment of large numbers of new schools. All of these improvements will help raise the status of the teaching profession.

1.4 The development and implementation of a Total Educational Technology Plan (TETP) . This component regarded as a critical ingredient for success of the Project, will be dealt with in more detail later in this paper. Evidence of the importance of ET may be seen in the allocation of US$3m for hardware and US$7m — $10m for the production and acquisition of instructional material.

1.5 The upgrading and strengthening of existing Government Colleges for Elementary Teachers (GCETs) and Government Colleges of Education (GCEs). This will be assisted by the new model GCETs in conjunction with the PITEs and through the intensive training of Master Trainers who will work in these institutions.

1.6 The Project is being managed by a Federal Co-ordination Unit working in conjunction with Provincial Implementation Units, both groups being under the leadership of the Project Directors and Managers. The main academic and professional inputs are the responsibility of a Technical Panel on Teacher Education, supported by the expert advice of international and local specialist consultants.

1.7 Other features of the Project are the conducting by each Province of a number of action-based research studies, and the involvement of UNICEF in regard to non-formal teaching materials for the education of mothers and girls currently outside the school system.

Educational Technology and the Project

As indicated above, Educational Technology (ET) is a key Project element designed to assist in achieving the Project's major goals and objectives. Experience in many countries, both developing and developed, has shown that ET is capable of enhancing education and learning at the macro and the micro level. However there is at least as much evidence to show that the use of ET does not guarantee success. In other words, although there can be spectacular successes derived from the astute use of ET, there can also be spectacular ET failure stories. The question that requires addressing is "Why is ET successful in some cases and not so in others?"

Anyone who has been a keen ET practitioner and careful observer of the ET process, will at least be confident that ET is a complex matter, and that there are of necessity many criterial factors that can determine whether or not ET is going to make a positive contribution to an educational system or simply finish up as a waste of a great deal of money. Approaching a challenge such as this Project, it is essential to firstly identify the criterial factors, as well as those factors likely to negate chances of success, if not attended to. Thus a systematics and scientific approach must be used, because if there is a rough formula that is relevant, it is that all criterial factors must be operational for success to be achieved, but it needs often only one negative factor to negate the effect of ET.

Needs Analysis (NA)

The starting point in such a process must be a thorough NA, which must analyse both the macro or general scene as well as the micro or grass roots level, in order to identify characteristics which might provide vital clues as to which approaches and techniques are likely to lead to success, and which factors may lead to failure if not controlled. The results of the Project NA are as follows:

2.1 **The Target Population** — Very useful data on the school population in Pakistan is available through the data below. Although no formal survey of Teacher Education (TE) pre- and in-service students has been possible at this stage, it can be safely assumed that teachers and TE students represent a wide range of characteristics, including factors such as socio-economic, motivation, educational ability levels including literacy, teaching abilities, geography and gender.

The primary school enrolment rate is low (42% during the period 1986-92)[2], particularly for females, whose enrolment rate is only that of males

The adult literacy rate is low (47% of males in 1990, and 21% for females) while in the period 1986 to 92, 29% of eligible males were enrolled in secondary school with only 13% of females enrolled

About 70% of the population live in rural areas where poverty is pervasive. Access to education is limited in rural areas.

From this data on Pakistan's children, certain inferences about Pakistan's teachers seem valid:

- Clearly there are insufficient female rural teachers and schools available.
- With adult illiteracy rates being so high, it would be surprising if the standard of adults presenting for teacher training was of generally high standard.

Recommendations

Some major implications to be drawn from this data are as follows:

2.1.1 Quality educational software must be produced to help dramatically improve the standards of Pakistan education and TE in particular

2.1.2 On the observations and data available, including comparable overseas countries, the media/technologies that seem to be most appropriate for Pakistan are as follows

Audio cassettes (using batteries/mains power)

Audio/Print (eg printed modules/sheets, and teacher's guide)

Print — textbooks modules (booklets) posters, charts, maps etc,
Video cassettes — with teacher's guide and worksheets
Broadcast TV and radio — with teacher's guide and worksheets
The Computer — though this is a complex issue requiring careful consideration
Slides with teacher's guide and worksheet
Slide — tape with teacher's guide and worksheet
Overhead Projector
Opaque Projector
Role Plays and simulation games

2.1.3 Literacy levels must be raised in all pre and in-service teacher trainees, and training in literacy teaching should become a priority area in all TE programs.

2.1.4 Literacy materials and programs must be developed and acquired as a high priority.

2.1.5 Distance learning techniques and equipment capable of supporting distance learning in the rural areas, must be given priority, including basic print materials, as well as sound and video broadcasts and tapes .

2.2 **New TE courses are being developed.**

Recommendations

2.2.1 Further detailed planning on the new range of TE courses will mean a range of good quality hardware, software and instructional approaches and techniques is required.

2.3 **Provincial pressures for allocation of electronic media equipment.**

There have been the usual pressures evident for the speeding up of allocation of the US$3m worth of AV equipment. This is understandable, but the NA was a necessary pre-requisite to the allocation process, and if any of the pressures came from the donor's desire to have loan money spent, it is regrettable.

Recommendations

2.3.1 The sensitive issue of equipment allocation must be allowed to proceed without undue pressures, until the NA has been completed. The latter has now been completed as far as available data will permit, and allocation is proceeding, with ADB tenders to be called any time.

2.3.2 In order to facilitate the establishing of the PITE's, TO's MTU's and Model GCET's these institutions should be given priority in the equipment allocation process.

2.4 **Teacher/principal attitudes towards the equipment and software.**

It is important that the enthusiasm towards the acquisition of hardware is matched by comparable enthusiasm towards the acquiring of relevant and effective software.

Recommendations

The main strategies likely to assist on the key attitudinal issues are:

2.4.1 Imaginative and practical ET utilisation training in pre and in-service education programs, including teaching practise AV utilisation tasks.

2.4.2 The availability of high quality and relevant software must be given priority. It should be noted that early ET input in the curriculum planning process is a necessity.

2.4.3 The ET consultants should plan to visit each Province, particularly the PITE's about a month prior to the arrival of the equipment, and again about a month after its arrival if possible.

2.5 **Potential sources of software**

Recommendations

2.5.1 Ready-made good quality and relevant software must be sought from overseas sources and reviewed for use in Pakistan if appropriate.

2.5.2 Relevant software for all media must be produced for as many TEI courses as possible at the national level (Allama Jqhal Open University, Channel 2 etc) regional level PITE's and for some media, even locally.

2.5.3 Commercial materials produced in Pakistan should be considered under guidelines to be determined.

2.5.4 The Project Management — national and Provincial, must give priority to developing an infrastructure to enable instructional materials to be accessed and used from all over the nation, and for decision-making regarding nationally produced materials.

2.6 **Availability of Ancillary Funding.**

Funding for software, raw materials, maintenance etc, requires recognition and Government commitment.

Recommendations

2.6.1 The matter is as much an issue for utilisation education as Government commitment.

2.7 **Specialist ET Assistance for Teachers**

It is assumed that Pakistan currently has no qualified Educational Technology Specialists (ETS), the roles of which are set out in 2.7.1/2.7.2 below.

Recommendations

2.7.1 The ETS has the experience, training and creative skills to produce good quality software specifically designed for the needs of the client teacher/instructor.

2.7.2 The ETS is able to work with teachers in assessing their teaching needs, offering informed ET advice and assisting in procuring and/or producing materials, and in helping to implement strategies in the classroom if required.

2.7.3 Plans are under way for the training of ETS through a post-graduate level course at a recognised Pakistan university.

2.7.4 Links should be formed with the Lahore-based National Educational Equipment Centre (NEEC) because of mutually beneficial possibilities, e.g. NEEC has developed a low-cost robust good quality overhead projector for schools.

2. 8 **Developing a Profession of Educational Technology Interested People.**

ET is a complex and constantly changing and expanding area, and experience has shown in as many countries, the ETS's benefit significantly from being able to be members of a professional organisation designed to help them.

Recommendations

2.8.1 A professional Pakistan Society for Educational Technology should be established. There has already been a most positive response to the concept, and it is hoped that the Australian Society for Educational Technology (ASET) at its Biennial International Conference (EdTech'96) will offer appropriate assistance and encouragement to the Pakistan initiative.

2.8.2 Consideration should be given to creating a career path for ETS's.

2.9 **Adequate Storage and Access for Hardware and Software.**

The secure, clean, cool and dry storage of both hardware and software is a matter that requires priority planning. A related and equally important issue is the need to develop a system by which teachers can gain meaningful information about software, so that they have the potential to borrow software from a PITE in another province or a national library/resource centre.

Recommendations

2.9.1 These matters above must be addressed energetically by Project Management at all levels because it is a more complex matter to implement than one would expect.

2.9.2 Every effort must be made at all times and levels, to ensure compatibility of hardware and software right through the system.

2.10 **The Roles of the Mobile Training Units (MTU's).**

Recommendations

It is anticipated that there will be two rather than one MTU per Province because of the valuable service they can offer and because of the distances involved in most provinces. Their roles will be as follows

2.10.1 Crews consisting of an ETS and AV Technician will be able to assist staff in colleges and TO's with ET and other training programs, equipment maintenance, information on available software and ferrying preordered software and hardware as appropriate.

2.10.2 Additionally the units will be so configured as to enable them to function as Outside Production Units, thus extending the production flexibility of the PITE production centres.

2.11 **Overseas Lessons Regarding the Application of ET Particularly in Developing Countries**

Fortunately much has been learned in this field around the world over the last decades. Arguably the best source of collected wisdom on the matter is contained in seminar summaries from UNESCO.

Recommendations

2.11.1 The UNESCO reports (1988-95) will be studied so that relevant information can be included in the final draft of the Total Educational Technology Plan (TETP).

Conclusion

The ET portion of this paper is effectively a draft of the TETP, but it will vary from the final version only in terms of fine detail and volume, since there is still much information to be included in the final plan.

Footnotes

1 ADB Appraisal Report ADB Bangkok, 1996 p3

2. UNICEF State of the World's Children Report 1995 UNICEF, New York 1995 Table 1 (pp66-7)

3. Ibid Table 4 (pp 72-3)

4 ADB Appraisal Report ADB Bangkok, 1996, p5
Although beyond the terms of reference of this Project, it is interesting to note that in the mid 1960's, a highly successful Italian project called Telescoula, used broadcast TYV at the local village level to solve their high rural illiteracy problem. Today, Italy has one of the highest literacy rates in the world (UNICEF State of the World's Children Report, 1995 Table 4 (pp72-3)